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Molecular Characterization of four genes encoding ATP-binding cassette (ABC) transporters isolated from *Brassica rapa* L.

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Objectives

To obtain physiological roles of ABC transporters in *Brassica rapa,* we have tried to isolate cDNA cloning and analyzed molecular characterization of its genes

Materials and Methods

1. Materials: Flower tissue of *Brassica rapa* L. (cv. Osome)
2. Methods: Sequence, RT-PCR, Real-time PCR, GFP fusion protein analysis, Southern blot analysis

Results and Discussion

ATP-binding cassette (ABC) proteins constitute a large superfamily found in all kingdoms of living organisms. To date, most of the ABC transporters characterized in plants have been localized in the vacuolar membrane and are considered to be involved in the intracellular sequestration of cytotoxins. Working on the assumption that certain ABC transporters might be involved in defense metabolites secretion and their expression might be regulated by the concentration of these metabolites, we have tried to randomly sequencing from FOX library. Four cDNAs encoding an ATP-binding cassette transporter were grouped pleiotropic drug resistance (PDR)(*Batp 14*, *Batp 261* and *Batp 289*) and multidrug resistance (MDR)(*Batp 272*) subfamilies. RT-PCR analysis of each genes was detected in differential organ or development stages. Also to determine whether *Batp 272* is localized to the cell wall or to the plasma membrane, a plasmolysis experiment was performed. *Batp 272* directed green fluorescence signal was internalized and associated with plasma membrane after plasmolysis, whereas no strong signal remained present around the cell wall. This observation suggests that *Batp 272* is likely a plasma membrane protein.

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